



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/666,242

09/22/2003

Christian Simon

M1073-7001

9501

37462 7590 06/28/2007

LOWRIE, LANDO & ANASTASI

RIVERFRONT OFFICE

ONE MAIN STREET, ELEVENTH FLOOR

CAMBRIDGE, MA 02142

EXAMINER

MARIAM, DANIEL G

ART UNIT

PAPER NUMBER

2624

MAIL DATE

DELIVERY MODE

06/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/666,242		SIMON ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	DANIEL G. MARIAM		2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 30-66 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 30,31,39-52,54,56,58,59 and 64-66 is/are rejected.
- 7) ☒ Claim(s) 32-38,53,55,57, and 60-63 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Examiner's Note***

1. Examiner has cited particular columns and line numbers or figures in the references as applied to the claims below for the convenience of the applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 46-52 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. While claim 46 recites the limitation "calculating a target feature vector for said target object according to a third mass distribution indicator", the specification says nothing about this feature. How is the third mass distribution indicator generated, and how is it related to the other distribution indicators, and how is it applied in the comparing operation? The disclosure does not provide adequate support of this feature, and thus would not enable one skilled in the art to make and/or use the invention.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 30-31, 40-45, 54, 56, 58-59, and 64-66 are rejected under 35 U.S.C. 102(b) as being anticipated by Lin (6,272,245):

With regard to claim 30, Lin discloses a method for determining a similarity score of a target object, i.e., trial document, with respect to a model object, i.e., model document, said target object being in a plane and said model object represented by a model feature vector (See for example, Figs. 5-7), the method comprising: generating regions of the plane, i.e., x-y plane (See for example, Fig. 3,6 & 8-9) according to a first mass distribution, i.e., intensity distribution of the pixels, of the target object, i.e., trial document, and a second mass distribution of a part of said target object, each of said regions having a corresponding mass distribution indicator, i.e., statistical characteristic, geometrical relationship, extracted feature, or value; calculating a target feature vector, i.e., feature vector and/or Z, for said target object according to at least *one of* said corresponding mass distribution indicators; and computing said similarity score using said target feature vector and said model feature vector (See col. 7, line 31 – col. 8, line 52, and should be read in cooperation with the registration the model document described at col. 5, line 59 – col. 7, line 31).

Art Unit: 2624

With regard to claim 31, the method as in claim 30 wherein said generating comprises partitioning said plane to generate said regions according to said first mass distribution and said second mass distribution of a part of said target object (See for example, Figs. 3 & 6).

With regard to claim 40, the method as in claim 30 wherein said computing said similarity score comprises computing a similarity score that is independent of variations in scale of at least one of said model object and said target object (See for example, col. 6, lines 20-40; and Fig. 8).

With regard to claim 41, the method of claim 30 wherein said model object is in said plane, the method further comprising: generating regions of the plane according to a first mass distribution of the model object and a second mass distribution of a part of said model object, each of said regions generated for said model object having a corresponding model mass distribution indicator, i.e., statistical characteristic, geometrical relationship or value, and calculating a model feature vector, i.e., model feature vector or Z, for said model object according to at least one of said corresponding model mass distribution indicators (See for example, col. 5, line 59 – col. 7, line 31).

With regard to claim 42, the method as in claim 30 wherein said model object is taken from a bank of model objects, each of said model objects is represented by a model feature vector, and wherein said computing said similarity score comprises computing a similarity score for each couple comprising said target feature vector and one of said model feature vectors (See for example, col. 7, line 50 – col. 8, line 32).

With regard to claim 43, the method as in claim 42 further comprising, for each said couple comprising said target feature vector and one of said model feature vectors, associating a given weight vector (See for example, col. 7, line 60 – col. 8, line 12).

With regard to claim 44, the method as in claim 30 further comprising associating a given weight vector to the couple comprising said model feature vector and said target feature vector (See for example, col. 7, line 60 – col. 8, line 12).

With regard to claim 45, the method as in claim 44 wherein said computing said similarity score comprises further using said given weight vector (See for example, col. 7, line 60 – col. 8, line 12).

With regard to claim 54, as best understood, Lin discloses a method for comparing a target object, i.e., trial document, and a model object, i.e., model document, said target object being in a plane, i.e., x-y plane, and said model object represented by a first model feature vector and a second model feature vector (See for example, Figs. 5-7), the method comprising: generating regions of the plane; determining a first target feature vector associated with a first direction, i.e., x direction, of said plane by determining a first target feature associated with said first direction, i.e., x-direction, in one or more of said regions, determining a second target feature vector associated with a second direction, i.e., y direction, of said plane by determining a second target feature associated with said second direction, i.e., y-direction, in one or more of said regions, computing a first similarity score using said first target feature vector and said first model feature vector; and computing a second similarity score using said second target feature vector and said second model feature vector (See col. 5, line 59 – col. 7, line 52).

Art Unit: 2624

With regard to claim 56, a method as claimed in claim 54, further comprising determining a third similarity score by combining said first and said second similarity scores (See col. 7, line 55 – col. 8, line 57).

With regard to claim 58, a method as claimed in claim 54, wherein said model object is in a model plane, the method further comprising: generating regions of said model plane, determining a first model feature vector associated with a first direction of said model plane by determining a first model feature associated with said first direction of the model plane in one or more of said regions of the model plane; and determining a second model feature vector associated with a second direction of said model plane by determining a second model feature associated with said second direction of the model plane in one or more of said regions of the model plane (See for example, Figs. 3-6, and there associated text).

With regard to claim 59, a method as claimed in claim 54, wherein at least one of said first target feature and said second target feature is a mass distribution indicator (See for example, Fig. 7).

With regard to claim 64, a method as claimed in claim 54, wherein said generating regions of the plane comprises partitioning said plane, i.e., x-y plane (See for example, Figs. 3 & 6).

With regard to claim 65, a method as claimed in claim 64, wherein said partitioning comprises partitioning said plane according to a mass distribution, intensity distribution of the pixels, of the target object (See for example, col. 6, line 41- col. 7, line 47).

With regard to claim 66, a method as claimed in claim 65, wherein said partitioning

further comprises partitioning said plane according to a first mass distribution of the target object and a second mass distribution of a part of said target object, i.e. pixel intensity distribution of x and y (See for example, Figs. 3 and 6).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Imai (2005/0036709 claims Foreign priority: Japanese Application No. 138723 filed May 16, 2003 (See attached copy of computer English translation of the application listed in Pto-Form-892, and an Official English translation will be provided upon a request by the applicants)).

With regard to claim 30, Imai discloses a method for determining a similarity score of a target object with respect to a model object, said target object being in a plane and said model object represented by a model feature vector, the method (See for example, Figs. 3-7, and the associated text), comprising: generating regions of the plane, i.e., bright and dark pixels, according to a first mass distribution of the target object, i.e., larger luminance distribution, and a second mass distribution of a part of said target object, i.e., smaller luminance distribution, each of said regions having a corresponding mass distribution indicator, i.e., threshold (See for example, paragraph 0049-0051); calculating a target feature vector for said target object according to at least *one of* said corresponding mass distribution indicators, and computing said



similarity score, i.e., degree of similarity, using said target feature vector and said model, i.e., reference, feature vector (See for example, paragraph 0052; and Fig. 7). Although Imai does not expressly call for a mass distribution indicator, it would have been obvious if not inherent that the threshold used in Imai does in fact indicates whether a smaller luminance characteristic distribution or larger luminance characteristic distribution is being exhibited as a result of the distribution when the distribution indicates a smaller or larger distribution when compared to the threshold.

8. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (6,272,245) in view of Pearce, et al (6,901,163).

With regard to claim 39, Lin discloses all of the claimed subject matter as already discussed above in paragraph 5, and incorporated herein by reference. While Lin uses a generic distance in computing the similarity score between the model document feature vector and the trial document feature vector (See for example, Fig. 8), Lin does not elaborate or define the distance as being an Euclidean distance between said target feature vector and said model feature vector. However, Pearce, et al (See col. 2, lines 33-44) teaches this feature. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate the teaching as taught by Pearce, et al into the system of Lin, if for no other reason than to provide an Euclidean distance to compute the matching or similarity score between two feature vectors.

***Allowable Subject Matter***

9. Claims 32-38, 53, 55, 57, and 60-63 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers: 5915250, **6128410** (See Fig. 4) and 6999623, and an English translation of Japanese Patent Application No. 138723.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G. MARIAM whose telephone number is 571-272-7394. The examiner can normally be reached on M-F (7:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW BELLA can be reached on 571-272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
DANIEL G MARIAM  
Primary Examiner  
Art Unit 2624

June 14, 2007